On examination he showed redness and dryness of the dorsa of both hands and distal aspects of the forearms with the greater involvement on the right side. He was fair-skinned with multiple lentigines over the shoulders. His physical examination revealed normal findings otherwise.

The following laboratory tests were either negative or within normal limits: complete blood count with differential, erythrocyte sedimentation rate, urinalysis, fasting blood sugar, electrolytes, blood urea nitrogen (BUN), creatinine, calcium, phosphate, uric acid, liver function tests, antinuclear antibody (ANA), rheumatoid factor, thyroid profile, serum vitamin B_{12}, chest x-ray, electrocardiogram (EKG), and urine porphyrin screen. Due to complaints of hand numbness, electromyogram (EMG) testing was obtained and revealed a bilateral carpal tunnel syndrome. He underwent successful release surgery for this problem.

We obtained forty-one materials from his work environment and conducted both standard and photopatch testing to them. All of these tests were negative at 48 and 72 hours. After phototesting with ultraviolet B, the patient developed a linear red streak over the right scapular area, which we felt was a phototoxic reaction at a spot where the drape covering the test area had slipped off. We could not produce any photocontact dermatitis. Phototesting was not performed on the hands and forearms. However, we did have the patient expose his hands and forearms to the visual display unit of a personal computer in our department for several hours as a type of use test. No reaction was elicited. During his hospital stay his rash resolved. Upon return to work the redness recurred. We arranged with the patient's superior for him to remain at his office environment but to avoid the visual display unit. After 1 week the patient's condition had resolved. When he resumed use of the visual display unit the rash recurred within 1 week.

Discussion. There have been several reports implicating visual display units as the etiologic factor of facial rashes.* Our patient clearly showed a challenge-rechallenge response to exposure to his visual display unit. Extensive phototesting failed to produce any abnormal reaction to either ultraviolet A or ultraviolet B. We therefore feel that another form of electromagnetic radiation emitted from the video display unit is the most likely etiologic factor in this man's condition. We do not know the spectrum of radiation emitted by the visual display unit at his office.

It is, of course, interesting to note that previous reports describe patients with facial rashes. In our patient the facial area remained clear and only the dorsa of the hands and distal aspects of the forearms were affected.

We feel that as the use of visual display units increases, more and more patients will surface with this reaction. When sufficient numbers of patients are located, a possible cause may be uncovered.

* Rycroft RJG, Calnan CD: Facial rashes among visual display unit (VDU) operators. Paper presented at the Conference on Health Hazards of VDU's at Loughborough University of Technology, Great Britain, 1980.
Avrid N: Facial rash in visual display unit operators. Contact Dermatitis 8:25-28, 1982.

(**Editor's note:** Although facial skin rashes are a common symptom associated with computer-related ES, other areas of the skin may also develop an EMF-induced rash. Also, other types of EMF exposure can cause a skin rash. In the book **Biological Effects of Microwaves**, two researchers from Poland reported that in cases of acute (short-term, thermal) exposure to microwaves, a skin rash reaction is possible. One of the book's authors saw such a case: exposure to 30-70 mW/cm^2 microwaves for five hours produced a skin rash on the abdomen, chest and back the following day, accompanied by fatigue, headache, and dizziness.)

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What Biological Effects Can Be Caused by Radiation?

(The following article segment is excerpted from the Federal Communications Commission (FCC) publication entitled "Questions and Answers About Biological Effects and Potential Hazards of Radiofrequency Radiation", OET Bulletin No. 56, Third Edition, January 1989. This publication is available free from the National Institute for Occupational Safety and Health, Robert A. Taft Laboratories, 4676 Columbia Parkway, Cincinnati OH 45226-1998; Phone: 1-800-356-4674.)

At relatively low levels of exposure to RF (radio frequency) radiation, i.e., field intensities lower than

those that would produce significant and measurable heating, the evidence for production of harmful biological effects is less clear. A number of reports have appeared in the Russian and East European literature claiming a wide range of low-level biological effects. The low-level effects on animals and humans reported in the Soviet and East European literature have included behavioral modifications, effects on the blood-forming and immunological system, reproductive effects, changes in hormone levels, headaches, irritability, fatigue, and cardiovascular effects. However, further research is needed to confirm the existence of these effects and to determine whether they might constitute a health hazard, particularly with regard to long-term exposure.

In recent years some Western scientists have also reported biological effects after exposure of animals and animal tissue to relatively low levels of RF radiation. These effects, often referred to as "non-thermal" effects, have included changes in the immune system, neurological effects, behavioral effects, evidence for a link between microwave exposure and the action of certain drugs and compounds, and a "calcium efflux" effect in brain tissue (discussed below). Experimental results have also suggested that microwaves might be involved in cancer "promotion" under certain conditions. However, contradictory experimental results have also been reported in many of these cases, and further experiments are needed to determine the generality of these effects and whether they constitute a threat to human health. It is possible that "non-thermal" mechanisms exist that could cause harmful biological effects in animals and humans exposed to RF radiation. However, whether this is the case remains to be proven.

One of the "non-thermal" biological effects that appears to be reproducible is the "calcium efflux" effect. This effect can be described as the observation that the release of calcium ions from animal brain tissue is enhanced after exposure to certain low intensities of RF radiation under discrete conditions of frequency and signal modulation. This effect has been observed at RF levels well below those necessary to produce heating of tissue. The extent to which this effect might indicate a hazard is not presently know, and further research is needed to determine the relevance, if any, of this phenomenon to human health.

Another RF biological effect that has received attention is the so-called microwave "hearing" effect. Under certain specific conditions of frequency, signal modulation, and intensity, it has been shown that animals and humans can perceive an RF signal as a buzzing or clicking sound. Although a number of theories have been advanced to explain this effect, the most widely-accepted hypothesis is that the microwave signal produces thermoelastic pressure within the head that is perceived as sound by the auditory apparatus within the ear. It is important to emphasize that the conditions under which this effect occurs **would not** normally be encountered by members of the general public.

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Letter to the EMR Community

Arthur Firstenberg - USA

In what amounts to a massive biological experiment, Omnipoint Communications and Primeco Personal Communications, activated the first Personal Communications Services (P.C.S.) systems in 16 metropolitan areas throughout the United States. This is a new type of cellular service. I can unfortunately state that its effects are already deadly.

In drafting this letter I struggled with whether to include a list of my own symptoms. It seems hard to convey the impact of this technology in any other way, so with some hesitation I will describe what I have experienced: terrible burning pain in the middle of my chest, burning pain in my testicles, tremors, extreme weakness, dry puffy lips, swollen throat, pain in my eyeballs and the feeling that they are protruding from my head, pain in my ears, dizziness, headache, pain and stiffness in every joint. Every inch of my skin was sensitive to the touch. I could hardly eat and I was completely unable to sleep. To save my life I have left New York City. The relief is unbelievable.

I hear similar reports from other electrically sensitive people throughout the New York metropolitan area. Their situations are desperate. Some who are not electrically sensitive also report the same symptoms. This is immensely powerful radiation and like nothing any of us has ever experienced before.

The following cities are blanketed by these microwaves as of last week: Norfolk and Richmond, Virginia; Fort Lauderdale, Jacksonville, Miami, Orlando and Tampa, Florida; Chicago; Milwaukee;

New Orleans; Dallas, Fort Worth, Houston and San Antonio, Texas; and Honolulu. I understand Omnipoint plans to have the entirety of New York State covered by next summer, as well as Massachusetts, Connecticut, New Jersey, much of Pennsylvania, and Delaware. Between Omnipoint, Primeco, Sprint, AT&T and other competitors, there may well be no square inch of the United States uncovered by this technology in a matter of months. I believe the situation in the rest of the world is similar. Our planet is in grave danger.

I have put together a booklet (85 pages) containing information the telecommunications industry and regulatory bodies have said does not exist, i.e. consistent, repeatedly verified proof of health hazards of low-level microwave radiation compiled by researchers over the last 70 years. Ecological hazards are also included. For a copy of Microwaving Our Planet: The Environmental Impact of the Wireless Revolution, please send $25 to Arthur Firstenberg, PO Box 100404, Brooklyn NY 11210. The money will be used to fund a publicity campaign and legal action.

UPDATE: I have never experienced such torturous pain in my life as during my last week in New York City, nor have I ever experienced such relief as that day in the woods in Suffolk County. During the past few weeks I have been needing shelter. About half the time I have not had it, and now it is snowing and below freezing at night. I urgently need environmentally safe housing of some sort, which at minimum means hardwood floor, no smoking or fragrances, and no TV, computer, microwave oven or cordless telephone in use in the house. Also no nearby radar, transmitting antenna, or major power line. A space on someone's floor would be a blessing, but the environmental needs are not flexible. To continue my work with the Cellular Phone Taskforce I will need access to a telephone for at least the next several months. The work that needs to be done cannot wait.

First, the publicity campaign. This is either going to be the most ignored environmental story in history, or the biggest one ever, and it is probably up to us which. There are reporters following this story who are waiting to see if it has legs or not. **We need numbers, and we need them now. If you or anybody you know has been injured by a cellular tower and is willing to be interviewed by the press, please contact me by mail or phone:** (718) 434-4499, my Brooklyn phone number now has an answering machine on it.

We are also preparing newspaper advertisements, surveys to send to physicians, and leaflets for the streets, in an effort to determine how widespread the suffering is. This all costs money. The Department of Health should be doing this. It is instead being done by a team of people who are either ill or have left their homes.

We have just retained a lawyer to represent us in the first stage of legal action, i.e. a temporary restraining order to shut down this system. For this we also need numbers. We must demonstrate that significant numbers of people are being injured (particularly in New York City). Again, please contact me if you or people you know are ill. We also need contributions toward our legal expenses.

Neither the publicity nor the lawsuit can wait. It is now or never. This PCS technology will be where you are before you can blink, if it isn't there already, and this is an environmental threat unlike any other. Business will not be as usual. According to clinical studies, at least 15% of the population, or 40,000,000 Americans, will suffer radiation sickness, and since there will be no escape from the radiation, that sickness will be permanent and progressive. Injury to the rest of us will show up in other ways. Life expectancy will plummet. Birth defects and sterility will suddenly rise. 1998 will be a silent spring, and no one will know why.

For that is the horror of this new technology, that by the summer of 1997 there will be no place to go to escape from it. For those of us who have already been injured, there is almost no place to go now.

(Editor's note: According to a New York Times article on November 18 ("Two New Standards for Wireless in Duel"), New York City's PCS cellular phone system is a GSM type. The other cities mentioned have a Primeco CDMA cellular system. GSM, CDMA, and AT&T's TDMA are variations of PCS digital (pulsed microwave) phone systems being installed throughout the U.S.A.

If you or someone you know had/has an adverse reaction to cellular system activation, please also let me know. If you are ES and are able to use a phone, let me know if you are willing to be contacted by the media. Please remember to maintain the privacy of those you network with, particularly if you are in contact with the media.

As I see it, the ES are in serious need of assistance from legal, media, and government contacts due to the impending land-based cellular phone antennas and satellite wireless communications technology. Our problem is one not only of a disability nature, but a major civil rights issue due t

the fact that people are running from their homes to avoid new cellular antenna sitings. Some hospitals also have cellular antennas, which I see as a violation of the Americans with Disabilities Act.

On September 19, 1996 I sent a letter to the FCC Commissioners explaining that the ES, by medical necessity, must avoid EMFs and we must have a federal hearing to discuss how we can be accommodated.

I stressed that the lives and health of the ES are at risk with this new technology, particularly for those who have heart irregularities when EMF exposed. This letter was never answered.)

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Microwave Sickness - Part 2

Lucinda Grant

The 1958 Soviet occupational radiation standard of .01 mW/cm^2 (milliwatt per square centimeter) for the frequency range 300 MHz - 30GHz was based on a safety factor of ten; their standard was one-tenth of the radiation intensity at which symptoms were known to occur at that time (1 mW/cm^2 exposure for one hour divided by a ten-hour workday equals .1 mW/cm^2 exposure level, divided by a safety factor of 10).[1,2] Clinical medical evaluations of microwave workers began at the Moscow Institute of Labor Hygiene and Occupational Diseases in 1948.[2] The results of this clinical experience in part assisted in development of the 1958 Soviet occupational radiation standards.[2]

Pre-employment medical evaluations of prospective radiation workers was required by law under a 1957 Order of the Minister of Health - USSR "...in order to prevent occupational diseases."[1]

According to this Order and added suggestions from the Moscow Institute, applicants who had blood diseases, epilepsy, cataracts, central nervous system diseases, endocrine diseases, ulcers, glaucoma, cardiovascular injuries, etc. were considered unfit for work with ultrahigh frequency (300 MHz - 3000 GHz) generators as the radiation exposure could exacerbate these conditions.[1] However, by 1973 one researcher (Gordon) at the Moscow Institute of Labor Hygiene and Occupational Diseases reported that the group of microwave-exposed workers who began employment after 1960 were not clinically healthy—after the pre-employment medical evaluation law and the 1958 radiation standards were in force.[3] Proposed reasons why the workers were unhealthy focused on the possibility that the 1958 radiation standards, which were still in force, were inadequate or that the health problems were due to intermittent radiation exposure typical of the work.[3] Soviet studies had previously determined that intermittent radiation exposure was more biologically damaging than continuous radiation exposure, when energy and exposure time were the same.[3]

Over the years, the Soviets medically evaluated more than 1000 microwave workers.[2] Regulations were in place by 1958 requiring radiation workers be given at least one annual medical exam to assess their health.[1] Workers who developed an illness that was aggravated by radiation exposure at work were allowed a leave of absence or a work transfer.[1]

The occupational microwave standard of .01 mW/cm^2 was the daily limit for exposed Soviet workers. The Soviet public's radiation exposure limit was .001 mW/cm^2.[2,3] In contrast, the new U.S. public's radiation exposure limit under the Federal Communications Commission (FCC) standards of August 1996 is 1 mW/cm^2.[4] The Soviets were more conservative in their standards assessment; they considered variables such as pre-existing health problems which could increase a person's risk of developing non-thermal radiation-induced illness and allowed a safety margin within their standards to reduce this risk.

The difference between the 1958 Soviet radiation standards and the U.S. standards of that time was explained by one Soviet researcher as simply that the U.S. standards were solely based on protection from the thermal (heating) effect, ignoring non-thermal effects.[3] A recent letter from the U.S. Environmental Protection Agency (EPA) states that the current U.S. FCC radiation standards are also solely based on considerations regarding a thermal effect. The current FCC public exposure level of 1 mW/cm^2 was recommended by Bell Telephone Laboratories for workers in the 1950s.[2,5] Bell's calculations considered environmental variables that could increase the heating effect (air movement, temperature, and humidity) as well as physical work. Their guidelines were to avoid radiation exposures exceeding 10 mW/cm^2, only occasionally become exposed to levels between 1-10 mW/cm^2, and allow unlimited exposure only at radiation levels below 1 mW/cm^2.[2]

Conversely, the Soviets were particularly concerned about the cumulative effects of non-thermal radiation doses over time, including reproductive and genetic effects.[2,3,6] By 1973, a Soviet researcher

reported that in animal studies, non-thermal microwave intensities were found to "...elicit disturbances in spermatogenesis, degenerative changes in the ovaries, decreased reproductive capacity, decreased number of progeny, and damage to the feti."[3]

The Soviets also used animal studies to verify and elucidate their clinical findings of ill health among microwave workers. For example, Tolgskaya and Gordon investigated microwave-induced changes in the nervous system of rabbits and rats exposed to 1 mW/cm^2 for one hour daily during 100-200 days.[1] Although the animals appeared healthy after this exposure, thickening and distortion of the nerves were found. Subsequent neurological findings by Tolgskaya and Gordon were reported in their 1973 book **Pathological Effects of Radio Waves.**[7] These experiments used an in-depth assessment of nervous system changes to investigate what would otherwise not be readily apparent. The researchers studied changes in nerve synapses and receptors, using healthy control animals for comparison.

In one study, rats irradiated by microwaves between 4-10 mW/cm^2 for 30 minutes during 35-40 sessions had deformed dendrites in the cerebral cortex, displayed as a reduction in the number of appendages (spines) on the dendrites as well as thicker and shorter dendrite spines. Pavlov conditioning of the animals was also affected. As the experiment continued, the spines on the dendrites disappeared. At this time, Pavlov conditioning responses also disappeared. These changes were more apparent when using pulsed microwaves than when using non-pulsed (continuous) microwaves. Further studies revealed that both the "axo-dendritic synapses" and "axo-somatic synapses" of the brain were particularly affected by microwave exposure.[7] These changes in the cerebral cortex were considered similar to changes when animals were exposed to toxic chemicals.[1,7]

A trend the Soviets uncovered in many studies was the often noticed fluctuating symptoms during the course of radiation experiments with animals.[1,2] When first exposed, the animals became more excitable and their blood pressure often increased. Then, as the Soviets explained, a period of adaptation sets in and symptoms subside—for example, blood pressure may then reduce below normal. This period may last for the duration of the experiment. Adaptation has also been studied in the area of multiple chemical sensitivity (MCS) research.[8,9,10] According to a paper by William J. Rea, M.D., et al, "Adaptation is an acute survival mechanism in which the individual 'gets used to' a constant toxic exposure in order to survive, at the same time suffering a long-term decrease in efficient functioning and perhaps longevity."[8] Apparently, in general, when this second phase has run its course, the final phase of exhaustion sets in, according to the stress-adaptation-fatigue sequence proposed by Selye's classic work.[2,7,10]

Interestingly, the hypothalamus is necessary to modulate responses to stress.[7,11] Even more interesting is the research the Soviets did examining changes in the hypothalamus during radiation exposure. In a multi-phase animal study, three stages of blood pressure were found to coincide with three separate phases of hypothalamic neurosecretion when radiation-exposed:[3,7]

Phase 1 — blood pressure rises.
During this stage, hypothalamus secretion increases and adrenal gland activity increases.
Phase 2 — blood pressure normalizes.
The activity of the hypothalamus and adrenal gland normalize.
Phase 3 — blood pressure decreases to below normal level.
This period is considered a state of exhaustion where neurosecretion decreases markedly accompanied by an increase in hypothalamic cell death and a decrease in RNA, DNA and lipids in the adrenal cortex.

In another study, researchers evaluated the influence of 1 mW/cm^2 microwave frequencies on rodent blood pressure.[1] Thirty minute daily exposures caused a tendency for increased blood pressure during the first 14 weeks of exposure followed by a reduction to subnormal levels during the second course of 14 weeks. When the microwave exposure ceased, blood pressure resumed within the normal range. This pattern is similar to other studies where animals were allowed to recover after the radiation part of an experiment—they were often able to recover normal blood pressure and symptoms would subside. However, the longer the radiation exposure interval, the less likely the animal was to make a full recovery. This finding was also true of Soviet radar workers who had a long history of microwave exposure and whose symptoms did not normalize even after discontinuing work. They were classified as "occupational invalids".[3]

Particular attention was accorded the hypothalamus early in the Soviet research due to the fact that the hypothalamus is important to regulation of the body's cardiovascular system, temperature, circadian rhythm, autonomic nervous system, and endocrine system, each of which can be affected by radiation

exposure.[7,11] Soviet researchers reported that health problems related to low intensity, non-thermal microwave exposure have "...a definite clinical form..." signified by "...autonomic asthenia, neurocirculatory dystonia, and features of diencephalic insufficiency."[7] One of these researchers further disclosed that "...disfunction in the hypothalamus-hypophysis-adrenal cortex system is obviously responsible for the clinical syndromes of the disease."[3,7]

The functional disturbances and damage found during the Soviet animal radiation studies were several times identified as not being unique to radiation exposure; they mentioned how similar some of the results matched damage they had seen from other toxins—arsenic, lead, etc. In particular, several researchers' studies found changes in secretion of the hypothalamus and neurohypophysis during exposures other than microwaves—sound, light, chemicals, x-rays, and electricity.[3] More recently, U.S. researchers have proposed studying hypothalamus changes as an important part of understanding chemical sensitivity (MCS).[9,10,12,13] According to Dr. William Rea's book, **Chemical Sensitivity**, Volume 3, because the hypothalamus works with the pituitary gland, pineal gland, olfactory nerve, brainstem, etc., toxic stimulation of the hypothalamus could affect any of these.[13] And, some symptoms of MCS such as fatigue and myalgia, he proposes, could possibly be derived from this hypothalamus stimulation.[13] Fatigue is also a common symptom of electrical sensitivity, particularly during exposure to microwaves and other electromagnetic radiation. (For an in-depth technical analysis of nervous system and hypothalamus changes under radiation exposure, review in particular references 3 and 7.)

- Part 2 of a series -

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ENDNOTES

• **Bioelectricity Medical Symposium**-The American Environmental Health Foundation is presenting the 15th Annual International Symposium on Man and His Environment in Health and Disease, Special Focus: Bioelectricity (including Electromagnetic Sensitivity) in Dallas Texas, February 20-24, 1997. A flyer regarding this conference is enclosed with this newsletter issue. The conference is specifically for medical doctors and includes Dr. William J. Rea, Dr. Jean Monro, and Dr. Cyril W. Smith among the presenters. One day of this conference is open to the public (Feb. 22); however, that session will discuss implants. For further information, contact the American Environmental Health Foundation, 8345 Walnut Hill Lane, Suite 225, Dallas TX 75-231; Phone: (214) 361-9515 or (800) 428-2343.

• **Cellular Phones and Electromagnetic Interference**-The U.S. General Accounting Office published a March 1995 report entitled "Electromagnetic Interference with Medical Devices", a government document which states the following:

> *"Electromagnetic interference (EMI) occurs when electromagnetic energy from one or more sources, such as radio waves emitted by portable radios and cellular telephones, interferes with the normal operation of another device. EMI can come*

from many sources, since most devices with electronic components can emit electromagnetic energy. Such interference has reportedly caused wheelchairs to move unexpectedly, patient monitors to return false readings, and pacemakers to temporarily malfunction.

Television and newspaper reports detailed several instances in which medical devices malfunctioned, allegedly because of EMI, in 1994. Additionally, some hospitals have recently restricted the use of cellular telephones as a precaution against EMI with medical devices.

...an FDA official told us of several recent studies by scientists outside the United States indicating that digital cellular telephones can affect the operation of pacemakers under certain circumstances. While the results of these studies have been presented at professional conferences, they have not yet been published in peer-reviewed journals."

Electromagnetic interference (EMI) appears to be a practical way of explaining ES, electrical sensitivity being an example of electromagnetic interference manifesting in human form. That EMI can occur in electrical devices at non-thermal exposure levels is established science.

To obtain a copy of this free booklet, contact the U.S. General Accounting Office, PO Box 6015, Gaithersburg MD 20884-6015; Phone: (202) 512-6000. Ask for document #RCED-95-96R.

• **U.S. EMF Booklet Released**-The new U.S. government booklet "EMF in the Workplace" is now available from the EMF InfoLine at (800) 363-2383 or (703) 442-8934. ES is mentioned in the booklet as follows:

"Scientists have looked into the possibility that some workers may be 'electrosensitive' and experience a reaction of some kind to EMFs. The question arose because some workers, primarily in Scandinavian countries, reported skin problems or other symptoms when working with computers. Swedish researchers have reported that their preliminary experiments have not shown a link between a person's symptoms and exposure to electric or magnetic fields. The actual cause of these problems is still unknown. It may reflect a variety of factors, including temperature and humidity of the room and job stress."

According to one medical source, Gray's Anatomy (38th edition, page 1106), stress means any factor which can upset the body's normal processes. Certainly radiation-induced stress is a form of this "job stress", while many of the ES have also experienced the added "job stress" of becoming unemployed due to ES from EMF exposures in the workplace.

Not discussed in the new government EMF booklet is Dr. William Rea's study of 100 ES patients under environmentally controlled conditions which found clearly reproducible EMF responses for 16 patients, although this study is referenced in the bibliography.[1] Also, a 1992 Swedish ES provocation study of 14 patients by the National Institute of Occupational Health, Solna and the National Institute of Radiation found that "...three subjects could give responses that were better than random. Among these three were the two who had turned in better than random responses in the first test."[2]

Another Swedish provocation study found that some ES patients reacted to EMFs with "...quite correct responses to begin with, but later more random...", which the ES patients described as exhaustion, reaching a point where their symptoms became so apparent that it was then more difficult to determine additional EMF exposures.[3]

This problem of prolonged effects needs to be considered in provocation studies, as well as the problem of delayed reactions. As discussed in the "Microwave Sickness" article of this newsletter issue, page 8, an adaptation response in EMF provocation testing needs consideration too.

The new U.S. government booklet was prepared by the National Institute for Occupational Safety and Health (NIOSH), the National Institute of Environmental Health Sciences (NIEHS), and the Department of Energy (DOE).

An earlier EMF booklet by NIEHS and DOE, dated January 1995, is still available at the EMF InfoLine also. This earlier booklet, called "Questions and Answers about EMF", seems to provide a more fair assessment of EMF health effects, noting "Some studies have also investigated the possibility that certain sensitive individuals may experience allergic-type reactions to EMFs, known as 'electrosensitivity'."

Regarding electromagnetic interference, the new EMF booklet states:

"According to the U.S. Food and Drug Administration (FDA), electromagnetic interference can affect various medical devices, including electronic cardiac pacemakers and implantable defibrillators. Most current research in this area focuses on higher-frequency sources such as cellular telephones, citizens band radios, wireless computer links, microwave signals, radio and television broadcast transmitters, and paging

transmitters.

However, sources such as welding equipment, power lines at electricity generating plants, and rail transport equipment can produce lower-frequency EMFs strong enough to create interference in various medical devices. Some research suggests that metal equipment located near a magnetic field source can greatly enhance the intensity of the field from that source (Hansen, 1990). Some metallic medical implants (such as pins, nails, screws, and plates) can be affected by high static magnetic fields from magnetic resonance imaging (MRI) equipment and aluminum refining processes...

The FDA MedWatch program is collecting information about medical device problems thought to be associated with exposure to, or interference from, electromagnetic energy. Anyone experiencing a problem that might be due to such interference is encouraged to call and report it: (800) FDA-1088."

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Contact: Förlagstjänst, National Institute of Occupational Health, 17184, Solna, Sweden.

3. Wennberg, A., et al. "Electromagnetic Field Provocations of Subjects with 'Electric Hypersensitivity'." COST-244 Biomedical Effects of Electromagnetic Fields Workshop on Electromagnetic Hypersensitivity, Graz, Austria, 26-27 Sept. 1994.
Contact: A. Wennberg, National Institute of Occupational Health, S-17184 Solna, Sweden.

• **New Swedish EMF Booklet**-Several Swedish government agencies including the National Board of Occupational Safety and Health and the Radiation Protection Institute have jointly prepared the new EMF booklet "Low-Frequency Electrical and Magnetic Fields: The Precautionary Principle for National Authorities".

Their "guidance for decision-makers" is:

"If measures generally reducing exposure can be taken at reasonable expense and with reasonable consequences in all other respects, an effort should be made to reduce fields radically deviating from what could be deemed normal in the environment concerned. Where new electrical installations and buildings are concerned, efforts should be made already at the planning stage to design and position them in such a way that exposure is limited... The national authorities recommend a precautionary principle based primarily on non-discountable cancer risks... The overriding purpose of the precautionary principle is eventually to reduce exposure to magnetic fields in our surroundings, so as to reduce the risk of injury to human beings."

Regarding ES, their booklet states:

"Persons with electrical hypersensitivity often suffer from skin disorders in the form of flushing, smarting, itching etc. and also, in more serious cases, other symptoms such as fatigue, headache, palpitations of the heart, perspiration and stomach trouble. Symptoms of this kind are common in the Swedish population and can have many causes. But the electrically hypersensitive individual sees a clear connection between the symptoms and proximity to various forms of electrical equipment or, sometimes, exposure to sunlight. On the other hand, it has not yet proved possible to induce the symptoms in experiments where the electrically hypersensitive individual has not been aware of experimentally induced electrical and magnetic fields being activated."

(**Editor's note:** The ES are not all sensitive to the same EMF frequencies; also, problems of delayed reactions and prolonged effects typically affect EMF provocation study results. See "U.S. EMF Booklet Released", page 11 for further comments.)

"Additional research and evaluation of treatment methods, among other things, are needed in order to improve our knowledge of the causes of symptoms presented by the electrically hypersensitive, and so for the time being we have refrained from issuing any joint, general recommendations on this subject. It is very important, however, that electrically hypersensitive persons should be unconditionally examined by health and medical services, on the basis of their symptoms."

To obtain a copy of the booklet, contact Arbetarskyddsstyrelsen, 171 84 Solna Sweden.

• **Community Guide to Cellular Phone Towers**-A new 48-page book is available to educate the public about cellular phone towers, with steps a community can take to guide and limit tower sitings. This book — "Your Community Guide to Cellular Phone Towers" — is published jointly by the Communications Workers of America (AFL-CIO) labor union and The EMR Alliance. Information about studies, hearings, town ordinances, etc. are profiled with many real-life examples and activist group contacts.

Copies are available from The EMR Alliance, 410 W. 53rd St., Suite 402, New York NY 10019; Cost: $10 U.S.A., $15 outside the U.S.

ELECTRICAL SENSITIVITY NEWS

An international newsletter about the latest environmental illness—electrical sensitivity from electromagnetic fields

March - April 1997 Vol. 2, No. 2

TREATMENT SURVEY RESULTS

Lucinda Grant

With the last issue of Electrical Sensitivity News, a survey form was included to ascertain what medical treatments have most benefited and most worsened the electrically sensitive. The focus was on factors that specifically helped to control ES symptoms.

Fifty-nine completed survey questionnaires were received, the results of which are included within this article. Survey respondents primarily included residents of the USA, with participants from Belgium, France, and Australia too. Thank you all participants.

Please note that what follows are not treatment recommendations, only personal testimonies of what some ES have found to be helpful/harmful for them. These results may not represent a correct picture of what ES patients in general may indicate, if a larger survey population were consulted. Also, it is important to consider that while some ES found certain treatments beneficial, others may have found those treatments harmful. What helps one, may harm another, as our initial sensitizing exposures and consequent symptoms are quite varied.

Some respondents reported that nothing has helped them prevent or reduce an ES reaction. Their listed treatments were methods of abating the symptoms after the reaction had already occurred.

On a cautionary note, some treatments may be misspelled or misclassified, as I am not familiar with some of these treatments. Also, drugs are for specific problems and typically have adverse effects in combination with certain other drugs or with certain other medical conditions. Please consult an informed doctor for guidance. General comments from the surveys were included in the results, where appropriate.

- **How many completed surveys were returned?** 59
- **Participants from what countries responded to the survey?**
  USA, France, Australia and Belgium
  Fifty-four (92%) were from the USA.
- **How many survey respondents:**
  - **have or had electrical sensitivity (ES)?**
    56, with 3 uncertain.
  - **have multiple chemical sensitivity (MCS)?** 44 (75%)
  - **have chronic fatigue syndrome (CFS)?** 24 (41%)
  - **have dental amalgam (mercury) poisoning?** 17 (29%)
- **What other illnesses did participants list that they believe are related to their ES and how many listed these?**

Allergies	1
Candida	5
Diisocyanate poisoning	1
Epstein-Barr virus	1
Fibromyalgia	4
Food allergies/sensitivities	2
Hashimoto's thyroiditis	1
Light sensitivity	3
Liver disfunction	1
Metal sensitivity	3
Migraine	2
Pesticide poisoning, most sensitive to organophosphates and 2,4D pesticides	1
Porphyria	3
Post-polio syndrome	1
Scalded with radar in military	1
Silicone poisoning	1
Sound sensitivity	2
Sun sensitivity	1
Viral panel showed 16 times the antibodies to Coxsackie B2 and 3	1

- **How many listed the following level of ES:**
  - None (healed) 2

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 Lucinda Grant, editor of the newsletter, is founder of the Electrical Sensitivity Network and author of *The Electrical Sensitivity Handbook.*

WARNING: Environmental illness is a complex topic.
Methods or treatments that benefit some people may harm you. Readers are advised to consult appropriate medical, legal, or other professionals for personal guidance prior to making changes in their current program.

- Mild 11
- Mild to Moderate 2
- Moderate 15
- Moderate to Severe 8
- Severe 15
- Severe to Massively Severe 1
- Not Reported 5

- **How many with ES have these combinations:**
  - MCS and CFS? 10
  - MCS, CFS and dental amalgam (mercury) poisoning? 11
  - CFS and dental amalgam (mercury) poisoning? 0
  - MCS and dental amalgam (mercury) poisoning? 5
  - ES only? 9
  - MCS? 18
  - CFS? 2
  - dental amalgam (mercury) poisoning? 1
- **Of those who have recovered from ES, to what treatment do they attribute this recovery?**
  Two healings were reported. One was attributed to prayer. The second healing related to a combination of several factors which included dental amalgam and other dental metal removal, homeopathy, reiki, minerals, and reducing electromagnetic fields at home and work.
- **What symptoms were listed as the three most common related to ES?**
  (Some listed more than three symptoms, some had less. All were included.) Asterisk indicates the five highest totals:

Anxiety /hyperactivity	5
Balance/coordination problems	3
Bladder problems	1
Body swelling	1
Brain stops	1
Brainstem pressure	1
Breathing difficulties	1
Center of body vibrates	1
*** Chest pain/heart problems**	13
Chronic stomach problems	2
Chronic tendonitis	1
*** Confusion/poor concentration and/or memory loss**	18
Deep and acute burning in body	1
Depression	4
Dizzy	5
Drooling	1
Ear pain/ringing in the ears	5
Elevated blood pressure	1
Explosions of light in head	1
Eye/vision problems	7
*** Fatigue/weakness**	16
Gastrointestinal	2
*** Headache**	15
Hot flashes/sweats and/or fevers	2
Insomnia	3
Irritability	2
Jitteriness	2
Lightheaded	1
Lymphatic pain	1
Magnetic feel/pull on body	1
Mouth dry and scratchy	1
Muscle spasms/tension and/or tremors	7
Nausea	5
Neurological	1
Numbness	4
Osteoporosis	1
Pain in arms/legs and/or body	11
Panic attacks	3
Paralysis	3
Pressure/buzzing/vibrating in head	3
Seizures	3
Serious difficulty driving car	1
Severe disturbance to gait, speech, mannerisms which often requires wheelchair use	1
Shakiness	2
Sinus pain	1
*** Skin itch/rash/flushing/burning and/or tingling**	18
Stinging shock pains	1
Stroke	1
Throat irritated	1
Tingling in the stomach area	1
Vibrations in body	1
Violent pains in abdomen	1
Weight changes	1

- **Results of treatments for controlling ES symptoms:**
  A = excellent C = no effect
  B = some better D = worse

	A	B	C	D
Acupuncture	1	3	8	5
Acupressure		1		1
Electro-acupuncture			2	
Chiropractic	4	9	7	3
Network Chiropractic	1	1		
Other - Electric switch on table used to change position caused temporary paralysis				
Dental Amalgam Removal	4	10	9	3
Restructured bridge and removal of other dental metal	1			
Other - Two respondents have never had dental fillings.				
Energy Balancing			4	
Acu-scope		1		
Bodywork		1	1	
Cranio-sacral	1	2	1	
Digitopuncture		1		
Foot reflexology	1			
Jin Shin	1			
Jin Shin Jyutsu		1		
Kinesiology		1	1	2
Master Angelic Body-Mind Alignment	1			
Polarity therapy	2			
Qi Gong				1
Reiki	1	5		1
Shen			1	
Shiatsu				1
Full Spectrum Lighting	1	2		4

	A	B	C	D
Full Spectrum Lighting Continued				
Chromalux	1	3	2	1
Fluorescent		1	1	5
Incandescent			1	1
Kiva fluorescent			1	
Ott lighting			1	
Red and blue			1	
Softer bulbs		1		
Vita light				1
Herbs	1		1	4
Astralagus			1	
Barberry	1			
Basil	1			
Black cohosh		2		
Brain focus-ginkgo		1		
Burdock root		1		
Butcher's broom	1			
Calli tea - Sun Rider		1		
Cayenne pepper	1			
Celestial Seasonings Detox AM tea	1			
Echinacea			1	
Echinacea/goldenseal		1		
Fo-Ti		1		
Ginger	1			
Ginkgo	1	1		1
Ginseng	1	1		
Goldenseal	1			
Kava Kava		1		
Liver focus - milk thistle		1		
Milk thistle	1	1		
Parasite herbs		1		
Passion flower		1		
Peppermint/chamomile		1		
St. John's wort		1		
Silimarin			1	
Synergistic blends - Creative Health Ventures & Bio-Data Foundation	1			
Valerian		1		
White Willow Bark		1		
Homeopathy	1	2	5	4
Acusine		1		
Acute Rescue Drops		1		
Anxioplex-King Biopharmaceuticals		1		
Arsenicum	1			
Cactus	1			
Classical		1	1	
Constitutional/portraitive (phosphorus)		1		
Detoxosode for metals		1		
Detoxosode for radiation		1		
Digestive tincture		1		
Dioxyclor			1	
Drops for Detox	1			
Drops for Geopathic Stress	1			
Electric/Radiation - specially made	1			
Hobon	2			
HP22 - Metagenics	1			
Magnesium		1		

	A	B	C	D
Homeopathy Continued				
Mercurius		1		
Metal Detox			1	
Non-conventional		1		
Nosodes			1	
Organotherapy: epiphysum, hypophysum, serotoninum, melatoninum, myelin	1			
Radiation Detox			1	
Rescue 911		1		
Ruta graveolens		1		
Silica	1			
Thuja Progest	1			
Mineral Supplements	2	4	8	2
Calcium		4		
Calcium/magnesium		1	1	
Chromium		1		
ConcenTrace - Trace mineral drops		1		
Copper		1		
Full spectrum plus magnesium		2		
Huggins Matrix - minerals, enzymes, vitamins	1			
Magnesium	1	6		1
Magnesium - intravenous			1	
Magnesium sulfate		1		
Magnesium/zinc				1
Manganese		1		
Meggo trace minerals & trace elements	1			
Mineral Toddy - Soaring Eagle		1		
Molybdenum drops - sublingual	1			
Potassium	1	1		
Schiff's vegetarian calcium		1		
Selenium		1		
Silicium	1			
Twin Labs - Daily One	1			
Zinc		2	1	1
Prescription Drugs				
Amplacerton B			1	
Cortef		1		
Diflucan		2	1	
Doxepin	1			
Florinef		1		
Hormones	1			1
Klonopin		1		
Miconazole	1			
Neurontin	1			
Norpramin		1		
Nystatin			1	
NSAID	1			
Nizoral		1		
Oriflucan		1		
Phenobarbital		1		
Prozac	1	1	1	2
Solian	1			
Tegretol	1			
Thyrar		1		
Vicodin		1		
Volmax	1			
Voltaren	1			
Xanan		1		

	A	B	C	D
Prescription Drugs Continued				
Xanax		2		
Zyrtec		1		
Provocation/Neutralization Shots	2	2	3	6
Drops	1			
Vitamins		4	5	2
B-6	1			
B-12		3		
B-12 shots		2		
B complex		4		
Beta carotene	1			
C	3	4	1	
Core Level Brain/Spinal - Health Reserve				1
E	2	4	1	
Full-spectrum multivitamin		3		
Twin Labs - Daily One	1			
Vitamin C & minerals intravenous	1			
Other Therapies				
Accept your limitations & live within them	1			
Acidophilus - non-dairy		1		
After EMF exposure, laying on a piece of copper at the base of the brain & another piece at the base of spine (10-15 min.)	1			
Allermed air filters	1			
Aloe vera on skin		1		
Amino acids	1	3		
Avoid food allergens	1			
Avoidance (EMF)/Human Ecology	11	3		
Bioenergetics		1		
Biofeedback	1			
Blood-sausage		1		
Blue green algae	1	1		
Bury electrical wires leading to house	1			
Caprylic acid antifungal			1	
Cessation of exercise		1		
Change car		1		
Change computer		1		
Change to futon from inner spring mattress	1			
Changed frames on glasses from metal to plastic		1		
Charged water vials				1
Chelation therapy		2	1	1
Chondro-Plus-Biotics Research	1			
Chorella	1			
Clarus-type home device				1
Co Enzyme Q10		1		
Colonic therapy with filtered water	1			
Copper diodes				1
Cotton baseball cap to reduce problems with fluorescents	1			
Cover electric outlets with child-proof covers, removing as needed	1			
Dance movement class	1			
Depression		1		
Dermaton (electrical healing device)				1
Detoxification - oral agents & colonics			1	

	A	B	C	D
Other Therapies Continued				
Detoxification - Sea Klenz, natural cider vinegar, honey, omega 3, CoEnzyme Q10, acidophilus, flax oil	1			
DHEA	1	1	1	
Diet mostly of raw fruits & vegetables	1			
Digatrons - rice machines				1
Dr. Cyril Smith's personally prepared charged water vials		1		
Electrical Protection Equipment (EPE) (clock-type)	1			
Eliminating caffeine		1		
Enemas		2		
Epsom salt & baking soda baths	1	1		
Essiac tea			1	
Evening primrose oil	1			
Exercise	1	2		
Extra salt	2			
Flax seed oil/similar oils		2		
Flower Essence Remedy	2			
Foot reflexology			1	
Garlic		1	1	
Get out of town	1			
Getting outdoors	1	4		
Grapeseed Extract	1			
Green tea		1		
Grounded electrical appliances		1		
Grounding roof eaves & all other big metal masses	1			
Grounding the bed	2			
Humidifier	1			
Hydrogen peroxide				1
Ion generator	1			
Isopathic remedies			1	
Japanese miso soup		1		
Kelp		1		
Lecithin	1	1	1	
Lemon - Kefir		1		
Living outside		1		
Macrobiotic diet		1		
Magnet bed from Korea				1
Magnets	1			2
Magnets (negative pole)	1			
Mammogram				1
Massage	2	3	1	2
Meditation	2	2		1
Melatonin	1		1	
Mesh copper screen around 3 sides of bed				1
Milk		1		
Mora therapy		1		
Move to a less electrified area	3			
Multiple glandulars - adrenal, pituitary, hypothalamus, ovaries		1		
Nambudripad's Allergy Elimination Technique (NAET)				1
Natural progesterone hormone		1		
Neutralizing diodes				1
NIA (Body, mind & soul)	1			
Non-insulating shoes	1			
Old phones/short phone calls		1		
Organic foods	1			

	A	B	C	D
Other Therapies Continued				
Osteopathy			1	
Overeating		1		
Oversleeping		1		
Oxygen	1			
Ozone therapy	1	1		1
Pancreatic enzymes/digestive enzymes	2			
Parasite therapy			1	
Pets	1			
Polarizers - personal	1			
Polarizers - whole house	1			
Porphyria - Zyme - Biotics Research	1			
Positive thinking	1			
Prayer	1	2		
Protective frequency type products				1
Psychotherapy			1	
Q-Link pendant	1			1
Radiation house - clearing by dowser	1			
Raimondi Technique		1		
Reduced EMFs in bedroom	1	2		
Reinforce house grounding down to 5 ohms	1			
Relaxation		1		
Removal of convection/microwave oven	1			
Respirator	1			
Riding a stationary bike		1		
Rolfing	1			
Sauna therapy	1			
Seaweeds		1		
Shielded computer broke		1		
Shorten both cable TV line & phone line & ground extra wire	1			
Shower/bath		1		
Shut off power to the house/bedroom	4			
Simply lifestyle	1			
Standing barefoot or sitting on the ground (grounding)	3	1		
Stress reduction			1	
Tai Chi	1	1		
Tai - Rwon - Do	1			
Takionic products		1		
Teslar watch		1		
Transfer factors		1		
Tri-estrogen - natural estrogen & progesterone	1			
Turn off equipment	1			
V-8 juice	1			
Vietnamese fish sauce		1		
Visualization	1			
Walking		1		
Wear Pen Armor		1		
Yeast fighters	1			
Yoga	1	2		
Zucchini or yellow squash, spinach, dill, and parsley - boil all, eat the mass & drink the liquid		1		

Killing Us Softly

Muriel Arnow - USA

Have you ever wondered why this world seems to be going askew? Why everyone and his uncle is on Prozac? Have you noted the increase in mass murders, homicides, family violence, as well as the meteoric rise in anxiety and depression clinics and sleep disorder facilities? There is a very logical explanation if you are aware of certain facts. In a study in a recent issue of **Archives of General Psychiatry**, federal researchers found that male monkeys who had low levels of 5-HIAA, a serotonin metabolite and brain chemical, were more likely to have aggressive and impulsive offspring than fathers who had more of the serotonin chemical.[1] In this way, male monkeys can pass on aggressive tendencies to their offspring without ever spending any time with them. Serotonin is a neurotransmitter in the pineal gland that in turn produces melatonin. Both serotonin and melatonin facilitate proper neurological impulses traveling in the brain.

Currently, drug companies are developing numerous drugs for depression, i.e. Prozac.[2] These drugs work by increasing the brain's ability to use serotonin. In **HealthWise**, an article about Prozac mentions that when serotonin is present in low levels, depression and anxiety can result.[2] Low levels of serotonin produce four things: higher aggression levels, higher impulsiveness, anxiety and depression.[1,2] Thinking logically, these questions should occur to you. We've always had brains, we've always had serotonin and melatonin. But why, NOW, does there seem to be such aberrant behavior in the population? Why is there so much more anxiety, depression, and homicides? What factor has risen concomitantly with the rise of anxiety and depression?

Clearly, the wide range of electromagnetic fields assaulting our planet has risen with the above misery. I speak of things like two-way satellite dishes, electronic transmitters, computers, video games, overhead power lines that are carrying more power than previously (to prevent blackouts) and household gadgetry such as smoke detectors, microwave ovens, etc.

According to Dr. William Lee, in the book **The Anti-breast-cancer Pill**, exposure to electromagnetic fields with regard to the production of melatonin is under great investigation.[3] Melatonin affects sleep patterns. Lee further states that results of a study

evaluating pineal gland function in 42 volunteers who used electric blankets during sleep showed that exposure to 60 Hz electric or magnetic fields can cause melatonin changes in some individuals.

We are now surrounded by a sea of what is called non-ionizing electromagnetic radiation. It obviously affects our pineal glands in a deleterious way, causing aberrant behavior and extreme moods. If you are over 40, you know two things: 1) We were never exposed to such a plethora of electromagnetic fields, and 2) The world was a much saner place. If you wish to know more on this subject read:

1) "Light, Radiation and You" by J. Ott
2) "The Zapping of America" and "Currents of Death" by P. Brodeur
3) "The Body Electric" by Dr. R.O. Becker.

(Editor's note: Two technical resources regarding EMF effects on serotonin and melatonin are (1) "Chronic Exposure of Primates to 60Hz Electric and Magnetic Fields: II. Neurochemical Effects" by R.F. Seegal, et al., Bioelectromagnetics 10:289-301 (1989) and (2) "Chronic Exposure to ELF Fields May Induce Depression" by B.W. Wilson, Bioelectromagnetics 9:195-205 (1988). The primate study in the Seegal article showed a decline of 5-HIAA, a serotonin metabolite, in monkeys after exposure to electric and magnetic fields. The dopamine metabolite HVA also reduced during EMF exposure but HVA returned to pre-exposure levels within the 3-week non-exposure period thereafter; the 5-HIAA did not return to normal during this time. A rodent study from Milano, Italy presented at the 1996 U.S. Dept. of Energy EMF Conference showed similar 5-HIAA results.)

References

1. Talan, Jamie. "Study: Monkeys Can Inherit Aggression." Newsday, (New York newspaper) date unknown.
2. Brown, Tricia. "Popping Prozac." HealthWise, March/April 96, p. 8.
3. Lee, William H., R. Ph., Ph.D. and Lynn Lee, CN. The Anti-breast-cancer Pill. Instant Improvement, Inc.

. . . . . .

Microwave Sickness - Part 3

Lucinda Grant

Soviet studies of microwave and other radiation health effects included the use of various pharmaceutical drugs and herbs in an effort to determine how to both quell the symptoms and pinpoint the disfunction. (**Warning:** Drugs, etc. mentioned in this article may be misspelled or otherwise incorrect due to noted problems in the translated documents. Many of the drugs listed are not in a current U.S. edition of Physician's Desk Reference and therefore are likely unavailable. This article is a general overview intended only to provide possible clues about radiation illness to those with a medical education.)

A 1973 Soviet article by Lobanova reported on changes in the survival time of healthy white rats exposed to lethal thermal-level microwave radiation after being given a pharmaceutical drug or other chemical.[1] Fifteen drugs/chemicals were tested; reported effects are listed below. (Drug specifics are from the article.):

Decreased Survival Time
Caffeine (stimulant)
Pentylenetetrazol (stimulant)
Chlorpromazine
Epinephrine
Ephedrine
Atropine
Acetylcholine
Nicotine
Indopan (monoamine oxidase inhibitor)

Increased Survival Time
Chloral Hydrate (narcotic)
Sodium Barbital (narcotic)
Bemegride (analeptic)

No Effect
Neostigmine
Serotonin
Mexamine

Lobanova stated that chemicals which either stimulated or decreased adreno-, cholino-, and serotonin brain sites reduced survival time of the animals.[1] Another Soviet researcher (Gordon) wrote that Lobanova concluded from this study that the reason the narcotics and analeptic increased the animals' survival times was due to their inhibitory effect on the brain/nervous system.[1]

A second study, also undertaken by Lobanova, tested the effect of pharmaceutical drugs and other chemicals on temperature changes of white rats subsequently exposed to thermal-intensity microwaves.[1] This study presumed that body temperature was dependent upon the health of the central nervous system. Results are reported below. Temperature changes were compared with a control group not chemically exposed:

Temperature Change Lessened During MW Exposure
Acetylcholine

Temperature Change Increased During MW Exposure
Epinephrine

No Effect on Temperature During MW Exposure
Histamine
Caffeine
Bemegride
Chlorpromazine
Atropine

Shortened Recovery Time to Normal Temperature
Acetylcholine

Increased Recovery Time to Normal Temperature
Epinephrine
Atropine
Caffeine
Bemegride
Chlorpromazine (produced sub-normal temperature after exposure)

This study concluded that the "adrenolytic agents", chlorpromazine and acetylcholine, lessened the microwave heating effect while the "cholinolytic agents", atropine and epinephrine increased the effect, although both atropine and chlorpromazine, which "block both adreno- and cholinoreactive structures in the nervous system", seemed ineffective in altering body temperature while microwave exposed.[1]

Soviet animal studies of how the body compensates under radiation exposure found that although electromagnetic frequencies have health effects specific to the type of radiation exposure, a general consistency in the trend of those compensating factors holds true.[2] For example, several of their studies found central nervous system acetylcholine increases, blood histamine increases, and reduced central nervous system cholinesterase activity due to radiation exposure in general.[2] The Soviets mentioned that the hypothalamus moderates the regulation of each of these.[2]

Gordon and Tolgskaya believed that microwave exposure could interfere with the body's cholinergic functions and nervous system, leading to what they considered a characteristic trait of autonomic disturbance—for the parasympathetic nervous system to predominate over the cardiovascular system.[2]

Regarding the medical treatment of Soviet workers suffering from radiation exposure, there is some translated information available but differences of opinion appear in the literature. Gordon indicated that some medical doctors thought that a balance between tranquilizing and stimulating drugs might be most helpful.[1] Others were more cautious about the use of stimulants, as the radiation workers often overreacted to them.[1] Sadchikova and Glotova pointed out that the treatment varies with each person, as each has a total symptom picture unique to them.[1]

According to Petrov, many treatments used for the Soviet radiation workers focused on stabilizing the central nervous system.[3] Drug use varied and depended on the individual's health condition. The following is a general list. (Classifications are from the Soviet documents.):[3]

Sedatives and Sleeping Pills
Valerian
Bromine preparations
Barbamyl
Bromural
Phenobarbital
Veronal
Noxiron
Sodium Barbital

Antihistamines
Dimedrol
Diprazine
Suprastin
Pipalphene

Tranquilizers
Trioxazine
Elenium

Other Drugs
Bellaspon
Apilac

Other researchers reported a variety of treatments categorized by the symptom picture:[1]

Asthenic Syndrome
analeptics/sedatives: Bromine preparations, Leonorus, Valerian, Hawthorn, Korvalol
in combination with stimulants: Securenin, tincture of Ginsen(g?) root, Pankrotin, etc.

Vagotonia
cholinolytic drugs: Atropine, Amizil
also: Belloyd, Bellaspon, subcutaneous insulin, intravenous glucose

Miscellaneous
tranquilizers: Seduksen, Elenium, Trioksazin
antihistamines: Dimedrol, Pipol'fen, Suprastin
vasodilators: Magnesium Sulfate

other: Reserpine, Papaverine, Eufillin, No-shpa, Validol, Nitroglycerin, Intensain, Panangin, Izoptin, Anal'gin, Chlorpromazine, Propazin

Some general treatments Soviet doctors sometimes recommended to workers ill from radiation exposure were a high-calorie diet with many vitamins, cool showers, injections of ATP, oxygen therapy, massage, and gymnastics.[1,4]

Soviet researcher Petrov found that animals given gutimine (guanylthiourea) or sodium hydroxybutyrate were more resistant to microwave exposure.[3] However, no preventative medicine was indicated in these reports.[3] Physical fitness was, however, considered a factor in resistance to microwave sickness, with exercise proposed by Petrov as a preventative measure.[3]

Typical symptoms found in one 1960 Soviet study (Sadchikova and Orlova) of 263 workers periodically exposed to microwaves up to several hundred microwatts per square centimeter (less than 1 mW/cm^2) were the following:[3]

Symptom	Percent
Bradycardia	48%
Dermographism	40%
Headaches	39%
Cardiovascular complaints	37%
Increased fatigue	35%
Hyperhidrosis of the hands	28%
Arterial Hypotonia	28%
Irritability	27%
Drowsiness at work	12%
Sinus Arrhythmia	10%

These workers were primarily between ages 20 and 40, with most employed for 4 years (66%).

Sadchikova and Glotova outlined the short-term results of medical treatments for other radiation workers:[1]

Asthenic syndrome	
returned to their jobs	54
reassigned to other jobs	7
	61
Astheno-vegetative syndrome	
returned to their job	35
reassigned to other jobs	7
work release of 1-2 months and further medical care at health resorts or other facilities	28
occupational invalids	11
	81

The researchers of this study noted that despite medical treatment and temporary avoidance of radiation exposure, the workers' medical conditions tended to worsen with repeated radiation exposure, especially as the health problems became more severe. When the condition became severe, advanced hypertension, ischemic heart disease, and convulsions were common.[1] No cure was mentioned.

Comparing the drug classifications used by the Soviets with the 1996 ES Network Treatment Survey results, some similarities are seen. Although only one drug appeared on both lists (Phenobarbital—an anticonvulsant), several of the Survey drugs also act on the nervous system, i.e. antidepressants and anticonvulsants.[5]

Are there any chemical similarities in the drugs? Also, is there a similar function or location of action among the drugs mentioned? A possible chemical relationship may exist among some of the Survey drugs, as several have a "meth" or "methyl" component in the scientific name: Vicodin, Prozac, Phenobarbital, Doxepin, NSAID (non-steroidal anti-inflammatory drug), Volmax, Imitrex, Neurontin, Xanax, Diflucan, Nizoral, and Nopramin.[5] Perhaps this chemical connection is a clue to a common function or merely a common ingredient in drugs in general. Does the possibility of Neurontin using the NMDA (N-methyl-D-aspartate) receptor sites (Electrical Sensitivity News, Vol. 1, No. 4, cover story) presage that perhaps these other drugs may have an NMDA affinity also?

Secondly, several of the drugs on the Survey list have a warning posted in Physicians Desk Reference that they not be used with monamine oxidase (MAO) inhibitors: Vicodin, Prozac, Phenobarbital, Doxepin, Volmax, Imitrex, Tegretol, Klonopin, and Nopramin.[5] This similarity may be another clue as to why they are beneficial for some ES.

Of the drugs mentioned by the Soviets, Chlorpromazine has a "methyl" component, Papaverine (Hydrochloride?) has a "meth" component, Reserpine has a "meth" component and an MAO inhibitor warning.[5] If the Soviet antihistamine Dimedrol is the U.S. antihistamine Demerol, then it is of interest to note that Demerol has a "methyl" component and MAO inhibitor warning too. Anafranil, a current prescription drug not mentioned in the Survey results but used by some ES in Sweden, also has a "methyl" component and an MAO inhibitor warning.

- Part 3 of a series -

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News from the Cellular Phone Taskforce

Arthur Firstenberg - USA

Publicity. Pelda Levey's Op Ed piece entitled "FCC ignoring health effects of cell phone antenna towers" appeared in the Hartford Courant on February 12. Our Town newspaper in New York is doing a story on this, appearing February 19.

Meetings. The Cellular Phone Taskforce meets on the first and third Sundays of each month. Contact Jimmy Haller at (201) 701-1529 for time and place of meetings.

Other activity. Our New York Press classified ad has been running since Christmas and has produced over 100 phone calls from men and women in all five boroughs, Westchester and New Jersey. All have similar stories of becoming ill suddenly in mid-November and being unable to shake the illness. All report that their friends, relatives, and colleagues are also sick and that this "unusual flu season" is the talk of the town. Many people have headaches for the first time in their lives. Dehydration, sometimes severe, has sent some to the emergency room. Chest pain has made some fear they were having a heart attack. A few also have itchy rashes all over their bodies. The elderly are particularly affected. I have gotten several calls from older people whose breathing has been affected severely and who can't leave their homes.

A disability discrimination complaint against the Federal Communications Commission was filed by the Cellular Phone Taskforce on February 3. The complaint states that the Radiofrequency Safety Guidelines adopted last August 6 by the FCC discriminate against the electrically sensitive.

News from the industry. Omnipoint's coverage map indicates there is already roaming service (i.e. other compatible PCS systems) available in San Diego, Honolulu, Knoxville, and most cities in North and South Carolina. The latest issue of Iridium Today boasts that Motorola's first three low earth orbit satellites are up there. The City of New York issued a Request For Proposals on the lamppost project November 23. Three thousand lampposts, traffic lights, and highway signs will carry new cellular antennas this summer. Metricom is already using the lampposts in San Francisco, Seattle, Corvallis, Eugene, and the District of Columbia to provide wireless Internet service.

Microwave hearing, I discovered, can be relieved by a close fitting metallic hat. I improvised one out of aluminum foil. It is an easy way to verify the electronic source of these sounds, and has convinced me the Taos Hum is microwave effect.

My own travels, I hope, have ended. I am looking for housing in the area of Norwich, New York. I have been dismayed to find cellular towers virtually everywhere I went, even in forested areas where there are no people, throughout New York, Pennsylvania, West Virginia and Vermont. I carried a cellular phone with me, donated by my nephew Mark, to indicate signal strength. I visited the National Radio Astronomy Observatory in West Virginia, as it is supposed to be in a radio quiet zone, only to discover that the area without cellular reception is actually a very small unpopulated area, and that the electronic noise in my head was still there.

Needs. We STILL need a lawyer to represent the large numbers of people who are being injured. Please leave a message for me at (718) 434-4499 if you are an interested lawyer or you know one.

I would like to thank the many people who have sent me contributions, which have helped with the costs of phone calls, postage, copying, advertising, legal consultations, and keeping Microwaving Our Planet in print.

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My Word

Pelda B. Levey - USA

(Editor's note: This article is reprinted from the

January 1997 newsletter of the Human Ecology Action League - New York City Chapter. Reprinted by permission. Copyright © 1997 by New York City HEAL.)

A COMPUTER IS NOT A FIT DOMICILE FOR MIDDLE-AGED LADIES AND OTHER LIVING THINGS

Well, they've gone and done it. They've made my City the equivalent of a Computerized Apple, and I can no longer live in it. Who woulda thunk?

On November 15, 1996 the gods of all that is righteous and good in wireless communications laid on Our Fair City a grid of radiation-emitting personal communications antennas. Lodged atop small buildings or perched at the third floor level of taller buildings and located every five or ten blocks, these antennas now criss-cross all five boroughs and much of the rest of this area, silently bombarding all of us with microwave radiation every step of our way. The purpose of this radioactive shower is better reception when we paste cellular phones to our ears to tell our live-ins and spouses which topping we prefer on our pizza delivery tonight.

I'd been feeling especially good in the months before the microwave incursion and was quite puzzled a few days before the 15th when I started feeling nauseous, unsteady and lightheaded in the streets. I didn't know what was hitting me and was desperately trying to deny that something was wrong. I never learn.

THE RAT FLUNKS THE TEST

Only later did I figure it out. Apparently the communications company was field testing the system, and this sensitive laboratory mouse wasn't doing too well in the experiment. Then the company turned the system on full force. For several days I teetered symptomatically. I even dared to hope that I might escape the brunt of the ill effects, until—whammo—the microwave radiation hit me like a ton of —electromagnetic fields. Suddenly I felt as if I were living inside a computer. My thyroid swelled. My throat, neck and glands hurt like crazy. For a nanosecond I thought I could live with these symptoms. But, not so fast. Apparently this new antenna system had a bonus in store for me: a big, shiny, new EMF symptom I'd never experienced before: My insides now felt as if they were being raked up and down with an ice scraper every minute of the day. Clearly this was not going to be a radioactive picnic.

THE RAT GETS KICKED OUT OF THE LAB

By the 19th of November my life had pretty much turned to the proverbial excrement. I knew I had to get out of the range of the damaging microwaves. Where to flee is always the question for the suddenly-made-homeless environmentally ill.

I'd recently tolerated 45 golden minutes at my 40th high school reunion in northern Connecticut, and had survived my first overnight in six years in my mom's liberally camphored, wall-to-wall carpeted, but welcoming apartment. If she would allow it, I would have to give her place a shot. I am a lucky daughter. She would, and I did.

ON THE ROAD: MERRILY WE ROLL ALONG

Into shopping bag after shopping bag went a week's supply of tolerated groceries from Whole Foods. Into a new suitcase which I prayed I could tolerate went my pillow, my much-washed sheets, towel and blanket, a few tolerated pieces of clothing, shoes and boots. Into a spare Moishe's Moving carton went my typewriter, some files I was working on, envelopes, paper, blank file folders, stamps, a few books and magazines, and my Rolodex. Ready or not, I was New England-bound. My sainted brother-in-law found me a wonderful driver with car, since I can't tolerate trains, buses or planes and don't own my own wheels.

And so we set out, windows open in a torrential rainstorm, me in the back seat grinning maniacally as I endeavored to ignore the aromatic ghost of recently removed car air fresheners.

When we arrived, my son, who had made the trip with me, whipped out of his knapsack the greatest gift this refugee could have received: a Manhattan telephone book. I was launched. I just didn't know where I would land.

DRIVING FOR DISTRACTION

To retain the rapidly depleting shards of my sanity, I had a goal for my Connecticut sojourn: I would get back my driving skills. Fortunately my mom's car is 20 years old, the perfect conveyance for a chemically and electrically sensitive canary. I'd always hated that car for its annoying habit, even in its youth of conking out on me as it rounded corners. I arrived on a Sunday. Bright and early Monday morning, I was behind the wheel, masking my

insecurity with a stream of nasty curses maligning the parentage of said vintage Pontiac. By Wednesday I was singing hosannas to the old gas guzzler, grateful that it had no computer whatsoever, and that it turned over like a dream ever morning on the open lot. By Friday, I was driving in a snowstorm, trying womanfully to forget the fact that I was rapidly reaching chemical overload, and would probably have to plan within days to flee somewhere else.

(Editor's note: Pelda and others are in need of MCS/ES suitable housing. If you have an extra room to rent or other accommodations, please let me know.)

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ENDNOTES

• **Department of Energy EMF Conference**-During November, 1996 the annual U.S. Department of Energy's EMF conference convened in San Antonio, Texas. Presentations by scientists and medical doctors from the USA and many other countries centered on ELF (extremely low frequency) biological effects research categorized as follows: carcinogenesis, gene studies, neuroendocrine studies, mechanisms, dosimetry and exposure assessment, field management and public policy, and human studies and epidemiology.

In addition, eighty-eight poster presentations regarding these topics were on display. Although none of the formal presentations appear to be specifically about ES, three of the poster presentations highlighted ES. These were from (1) Dr. William Rea, Environmental Health Center, Dallas TX, (2) James Beal, EMF Interface Consulting, New Orleans LA, and (3) researchers at the National Institute for Working Life, Solna, Sweden.

Sweden's presentation is particularly important as it represents the results of a prospective study of 706 young, newly hired electrical utility workers. The study assessed nervous system symptoms over a nine-year period using an initial medical exam and questionnaire with 3-year follow-ups. Work tasks and field measurements were used to determine average electric and magnetic field exposures. Four hundred fifty-five male workers completed the nine-year study. Results after six years indicated that "neurasthenic" symptoms (per Soviets: generally fatigue, headaches, irritability, drowsiness, heart pain, etc.)[1] were higher in the group with the highest magnetic field exposure (greater than 12 milligauss). Dizziness correlated with electric field exposures of more than 30 Volts per meter for 2.5 minutes or more daily. At nine years, neurasthenic symptoms remained highest in the group most exposed to magnetic fields, with less exposed intermediate groups also developing an increase in these symptoms.

Soviet research in 1966 by Asanova found similar symptoms in 400-500kV hydroelectric workers: headache, fatigue, asthenia, drowsiness, tremors, hyperhidrosis, cardiovascular shifts, and dermographism.[2]

A summary of the 1996 US conference proceedings is available free from W/L Associates, Ltd., 7519 Ridge Rd., Frederick MD 21702-3519; Phone (301) 663-1915. Also, you may contact W/L Associates requesting to be added to their mailing list when the Call for Papers becomes available for presentation submissions in the next DOE EMF Conference, November 9-13, 1997, in San Diego, CA.

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• **Tips on Cellular Antennas**-Wireless technology and its antennas are increasing at a rapid rate throughout the USA with no end in sight. At this time, it seems that the digital cellular technology is the most troublesome for the ES, particularly the GSM variety. The ES need to be heard via news media and your local members of Congress as soon as possible. The following tips may help: Contact your local EMF activist groups for assistance. Contact the EMR Alliance in New York for more regional EMF sources (Phone: (212)977-5541, Address: 410 W. 53rd St., Suite 402, New York NY 10019). Network with ES Network members, particularly regionally.

Also, contact your local city and county planning and zoning offices. Find someone there who will listen seriously to your concerns about the antennas—ask to talk with a planner. Explain that you are concerned about where the antennas may be placed in the future due to your health—explain about electrical sensitivity (ES). Ask them what regulations are in place now for antenna placements. Suggest that they need more information about ES and EMFs. Offer to drop by to talk with them and bring information they can review. Give the planning and zoning offices a letter with name, address, and phone number advising them that you want to be contacted regarding any future developments/hearings about antenna placements or about new antenna regulations, due to your medical condition. This letter

should also list your concerns: that antennas not be placed near schools, that antennas not be placed near hospitals (due to protections of the Americans with Disabilities Act, in this case re ES), and that antenna placements be as far away from residential areas as possible, etc. Also, it may be helpful to contact your city and county governments' risk managers and ask for a letter from them stating that they will keep you advised of cellular developments.

• **Moratoriums**-In the USA over 100 zoning moratoriums are in place regarding cellular antennas. These moratoriums allow local governments to have time to plan regarding antenna placements and in the process put the antenna projects on hold in those communities. Although the moratorium tenures are typically of short duration (30 days - 6 months) some have been extended.

Because there are so many cellular tower moratoriums nationally, the Cellular Telecommunications Industry Association (CTIA) recently filed a petition with the Federal Communications Commission (FCC) requesting permission to preempt all local telecommunications moratoriums. A forum on wireless topics was held by the FCC on February 10, 1997, in part discussing this issue. To date, the FCC has not yet issued a ruling on the CTIA petition.

If the moratoriums are allowed to continue, areas with them could be temporary havens for the ES depending on how many antennas are already in those locations. If considering a move, it may be useful to call the head planner at the proposed relocation site in advance and ask them what their current situation is regarding telecommunications antennas (how many, what type, where, etc.), when their antenna moratorium will expire, whether they expect to renew it, etc. A list of counties with recent moratoriums follows:
Alabama - Jefferson and Shelby; Colorado - Adams; Florida - Indiana River and Orange; Illinois - St. Clair; Louisiana - Jefferson Parish and St. Charles Parish; Minnesota - Scott, Washington, Wright; Missouri - Jefferson, St. Charles, St. Louis; North Carolina - Ashe and Transylvania; Utah - Salt Lake; Washington - Kitsap and San Juan.

• **Government Responses**-On January 23, 1997, the Federal Communications Commission (FCC) responded to my letter of September 19, 1996 regarding my concerns about the future proliferation of wireless technology and the ensuing health effects it will bring the ES. Their response was that "...the FCC is not a health and safety agency...", therefore my concerns should be routed to the Environmental Protection Agency (EPA) and the Food and Drug Administration (FDA).

By this time, I had already been in contact with the EPA; they responded to my letter via phone to let me know that the federal hearing I requested to address the concerns of the ES is typically initiated at the Congressional level. During this call, I reviewed the following points:

- Currently, to my knowledge, no federal government agency is monitoring health effects of the new wireless technology as it applies to the ES.
- No federal government agency appears to be prepared to do anything about any health complaints they might receive regarding the wireless technology.
- The urgency of the situation for those who have life-threatening symptoms from electromagnetic exposures.
- The suggestion that one accommodation the ES will require if this wireless technology continues is neutral zones where the ES will find refuge from land-based wireless transmitters. As a start, these sanctuaries might be national forests and parks.
- ES must be integrated into all federal government EMF research projects as soon as possible.
- The Soviet radiation warnings are proving to be correct; in fact, they predicted our symptoms.

Subsequently, I have also been in contact with the FDA via letter and phone addressing these same concerns. I hope that at some point ES will be integrated into policy decisions at the federal level to reduce further suffering by the ES and reduce the incidence of new ES cases and other electromagnetic illnesses. In the meantime, Congressional representatives need to hear from the ES and others concerned about the proliferation of EMFs.

• **Swedish Dental Amalgam Handbook**-In 1993 the Swedish Association of Dental Mercury Patients prepared the booklet "ABC on Mercury-poisoning from Dental Amalgam Fillings: Handbook for victims of mercury-poisoning from dental amalgam". This 32-page handbook is available in English from BioProbe, Inc., PO Box 608010, Orlando FL 32860-8010; cost $4.95. Their suggestions for reducing ES symptoms are antioxidants (Vitamin C, Vitamin E, etc.) and removal of all metal dental work; however, they note "...the electro allergy is one of the most persistent of the problems. It seems to decline very slowly."

ELECTRICAL SENSITIVITY NEWS

An international newsletter about the latest environmental illness—electrical sensitivity from electromagnetic fields

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The towering cell site debate: Who'll answer the health, safety call?

Cathy Bergman-Venezia

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An intense debate is raging regarding the health and environmental impact of the proliferation of the facilities needed to support the rapidly growing wireless industry. The debate is not consumer vs. industry, it is safety vs. hazard. Because industry has steadfastly not addressed the safety issue, it has placed the wireless future at risk.

Consumers have asked for credible scientific data that responds to their concerns that radio frequency (RF) and microwave (MW) radiation emanating from wireless facilities may promote or initiate the development of serious adverse health effects that range from learning disabilities to leukemia.

Consumers are asking hard health and safety questions—but neither government nor industry is providing any answers that respond to consumers' concerns.

The public is concerned about the health and environmental ramifications of wireless facility siting not because they are anti-industry, wild-eyed activists or rabid environmentalists as the wireless industry is so fond of saying, but because they are mothers and fathers who will not put their children's lives in harm's way.

Fears that wireless facilities may cause adverse health effects are not unfounded. A recent study from the United Kingdom found an increase of two to nine times the expected rate of leukemia in adults living near television and FM radio broadcast towers.

Concurrently, a new Australian study reported that children living within four kilometers of four TV stations in Sydney had a 50 percent greater incidence of leukemia, and more than twice the expected mortality rate due to leukemia. Granted, these two studies may address levels greater than those specific to wireless communications facility sites, but these new results support a number of earlier studies pointing to leukemia risks from exposure to RF/MW radiation from communications and radar transmitters.

The consumer doesn't know the threshold at which hazard begins and safety ends—but that's not their burden. Unfortunately, industry doesn't know the threshold levels either. The burden is on industry to prove safety—not on the consumer to prove hazard. So far, industry has shrugged this burden and no such proof has been provided.

Wireless technology is not new. It has been around for more than a decade. Industry has had years to provide convincing data to substantiate its claims of safety. Industry has not provided such evidence and trusts that its billion-dollar bank balance and tough-guy posturing will bully the consumer into agreeing to the construction of a cell site on every street corner. It has bought friends in high places to ensure it doesn't reach a busy signal when siting applications are sought.

However, through permit denials, moratoriums, injunctions and court ordered removal of unsafe

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 Lucinda Grant, editor of the newsletter, is founder of the Electrical Sensitivity Network and author of *The Electrical Sensitivity Handbook.*

WARNING: Environmental illness is a complex topic.
Methods or treatments that benefit some people may harm you. Readers are advised to consult appropriate medical, legal, or other professionals for personal guidance prior to making changes in their current program.

facility siting, the American public has advised the wireless industry that its strong-arm tactics don't play outside of D.C. In fact, in the one year since President Clinton signed the Telecommunications Act into law, more than 165 moratoriums have been enacted concerning the construction of wireless communications facilities. That's one moratorium every two-and-half days. Close to 200 communities have stood up to the billion-dollar wireless industry and just said no. Industry can anticipate more of the same in the future, as the American public will not let their children be used as guinea pigs in a bioeffects experiment while industry continues to push forward with no thought to health and safety issues.

The health and safety ramifications of wireless facilities may not be understood for decades, and the United States has yet to establish a research program that is focused on this issue. Despite this, however, Congress passed and President Clinton signed the Telecommunications Act in February 1996, which paved the way to the uncontrolled construction of thousands of wireless facilities.

New RF health and safety guidelines for wireless facilities were established in August. Pursuant to the Telecommunications Act, the Federal Communications Commission is charged with ensuring industry's compliance with these guidelines. However, these new RF guidelines only address thermal effects of RF exposure and are silent on the nonthermal effects of RF exposure. So, as hundreds of wireless service providers jockey for position to unplug America, the consumer's health-and-safety call on facility siting has gone unanswered by both industry and the federal government.

The public is concerned about the entire range of RF and MW radiation, not merely thermal effects of wireless facility siting. The American public is not asking, "If a cell site is built next to a school, will children attending the school explode like hotdogs in microwave oven?" That is a thermal effect. Consumers are demanding that attention be given to basic health and safety issues that include learning disabilities, headaches, cataracts, electrical sensitivity, DNA damage and leukemia. These are nonthermal effects of RF and MW radiation. The American public has asked the Environmental Protection Agency to address nonthermal RF effects over and over again but it continues to only address thermal effects. It's like ordering a pastrami sandwich and getting baloney. The public did not order baloney nor has it received an answer to its nonthermal RF effects questions.

Consumers have taken their concerns to the FCC. The FCC has sent them to the EPA. The EPA has advised that, "While studies continue to be published describing biological responses to nonthermal EMF-modulated RF radiation, the effects information is not yet sufficient to be used as a basis for exposure criteria to protect the public against adverse human health effects."

If the effects information is not yet sufficient to be used as a basis for exposure criteria to protect the public against adverse human health effects, then why have the American publics' rights regarding this matter been pre-empted?

Although the Telecommunications Act preserved the authority of state and local governments over decisions regarding the placement, construction, and modification of wireless facilities, in a classic Catch 22, the Telecommunications Act states that, "No State or local government may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the commission's regulation concerning such emissions."

Congress has pre-empted America's right to ensure its health and safety through state and local regulation but made no provision to protect the health and safety of the American public.

In addition, even if the new RF guidelines did address health and safety, the FCC has not established a monitoring system to ensure that industry adheres to the FCC RF guidelines. A representative from the EPA has advised that the wireless industry is pretty much running on the honor system when it comes to RF regulation compliance. The honor system? Can a fox be trusted to guard the hen house?

To complete this cycle of irresponsibility, the FCC is currently considering a petition by the Cellular Telecommunications Industry Association that requests the FCC to preempt state and local authority to enact moratoriums on wireless communications facility permitting and construction, so as to forbid communities from even considering siting applications by the carriers, or from ramifications of the construction of these facilities on the community and its residents.

What frightens industry? Why doesn't it want consumers to have a review process as its criteria for installing thousands of transmission facilities that scrape its skylines?

Unlike the federal government, consumers expect answers to the health and safety issues that plague

the wireless communications industry. The consumer deserves a response to these serious concerns.

Congress created a special interest paradise when it approved the Telecommunications Act in the face of intense consumer and state and local government opposition. Many grassroots groups and communities believe that Congress should realize what it has done and take immediate steps to undo the damage it has wrought. For to not take action to remedy this situation is to willfully and recklessly endanger the health and safety of every American citizen.

Concerned consumers suggest the following as a quick primer on a few of the key issues Congress should review without delay:

(1) The Telecommunications Act may violate the 10th Amendment to the Constitution of the United States.

(2) The RF guidelines do not properly address key health and safety issues (it omits nonthermal effects).

(3) The authority of state and local governments to govern themselves regarding health and safety issues has been pre-empted.

(4) There is no reasonable established research agenda that addresses consumer's health and safety concerns.

(5) There is no system in place to ensure industry's compliance with existing RF guidelines.

(6) The wireless communications industry is seeking complete siting autonomy at whatever cost to health, safety, the environment and the value of one's property.

If this country were really governed by its constituency, rather than special interests, the Telecommunications Act as it stands, would never have seen the light of day.

Congress overlooked some significant issues when it approved the Telecommunications Act. Until Congress takes corrective measures, consumer activists have suggested that the FCC request permission from Congress to place the health and safety pre-emption provisions of the Telecommunications Act into abeyance, until a national research agenda is established to find answers to the health and safety issues surrounding wireless facility siting. Further, the FCC should mandate proper buffer zones and other similar precautions to ensure the health and safety of individuals who live, work or are educated in close proximity to wireless facilities.

American was created by the people for the people not by industry for industry. It is high time that Congress remembered that.

Until the wireless communications industry provides credible data assuring the public of the safety of its facilities, it will continue to get a busy signal from the American consumer.

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Misery Loves Company

Dealy-Doe-Eyes Maddux - USA

Misery loves company is a very mean-spirited assumption. My flu symptoms don't get better because you have it too, nor will my broken bone set faster if others also have a break. At first we were alone when it became apparent that my husband, Johnny, was hypersensitive to EMFs. He was working on the Mark 2 cancellation machine at the post office and had strange reactions whenever he passed within 3 feet of the large motor. He'd start to drool or his mouth would fill with saliva, his right arm would lose sensation or totally go out of control like a writhing snake, his vision was affected, he'd get pins and needles on his right side, and tightness on the right side of his head. He had the mechanics check out the machine and he stayed away from the motor.

At first he thought it was just him. He was the only one in the world who reacted to proximity to electricity; a peculiarity better kept to himself. After exposure to the motor caused a major cerebellum stroke, he was ridiculed by doctors for insisting electricity was in any way responsible. We asked around and learned that a farmer had a cow that went down every time she wandered into a certain corner of his field. Since it was a lot of trouble to drag her out with a tractor, he was glad to follow his vet's advice and just fence off that corner. That ended his problem. The corner was closest to overhead transmission lines. Next we heard of a strange dead man in Brooklyn, New York. A relative's co-worker said that in the 1970s her uncle claimed he was bothered by electricity and only found comfort in a section of his home from which all electric wiring had been removed. Then I met four ES people in a nearby town. They introduced us to farmers with recurring stray voltage problems. I discovered Paul Brodeur's book and Dr. Becker's book **Cross Currents** in which he mentioned Dr. Rea and others who were ES. We were thrilled that in our misery we found others because there's strength in numbers.

Which brings me to the scientific method which puts the highest premium on observations. At what point are there enough accumulated facts to constitute proof? By using the scientific method, we should have enough info right now. I will give the medical history of my husband and build the case around his ES.

In 1978, Johnny's right arm kept getting pins and needles and then going numb after exposure to electricity on the job. I attributed this to small strokes and he visited several doctors in New York City who examined him and told him he was in excellent health. He told the last one that his wife thought the numbness was a small stroke. The reply: "Who's your wife? Not a doctor? Oh, she's a nobody. You're fine." The very next day Johnny had his first major cerebellum stroke. In the hospital he recovered in 4 hours—yes, 4 hours—except for a slight speech impediment. I told the doctors at the hospital that the three things causing his stroke were electricity, stress (upset over a long period of time), and coffee—probably the caffeine. The neurologists were adamant that electricity had no part in his illness. So we let that drop but insisted that stress and coffee caused the stroke. We asked, "How do these two things affect the body?" The doctors' constant response was that these two things do not cause strokes. After complete cardiological and neurological work-ups, they checked his teeth and blood for heavy metals and pronounced him in excellent health. However, the C.T. (scan) and the neurologists all agreed he'd had a major stroke. They monitored his blood pressure every hour on the hour for 24 or 72 hours. Sometimes Johnny got annoyed with the hourly harassment and his blood pressure would go up. I said, "This just goes to prove that under stress his blood pressure does go up." The doctors replied, "It's ok. It's only in the high normal level. Most of the time he's 120/80. Not to worry." I insisted this was something important. They insisted it wasn't.

Jump to 1997. A vast range of diseases related to stress have been identified by doctors and researchers. A very strong causal relationship has been found between stress and heart attacks, ulcers, mental disease, hypertension (high blood pressure), etc.

Professor Per-Arne Öckerman of Sweden completed a study in June 1996 which found injuries in the membranes of the red blood cells of ES, which cause mineral imbalances.[1] After learning this, Johnny took mineral blood tests that prove that he, like other ES people, is loosing minerals: he has no chromium, abnormally low copper, manganese, and potassium.

A 1987 report by Khaw and Barrett-Connor published in the **New England Journal of Medicine** said that "Clinical, experimental and epidemiologic evidence suggests that a high dietary intake of potassium is associated with lower blood pressure."[2] **(Editor's note:** This medical article also stated specifically that high blood pressure is the "...most important known risk factor for stroke."[2] See ES News, Vol. 2, No. 1, page 9 regarding phase one of microwave sickness—according to the Soviet research, blood pressure rises. In the USA, current research also indicates that potassium may have a protective effect against both high blood pressure and stroke.[3])

From Dr. Kenneth H. Cooper's book **Overcoming Hypertension**, I have learned that the mechanism that's supposed to transport sodium in the cells cannot do so properly if the sodium potassium hookup is flawed.[3] As sodium builds up in the cell it encourages the concentration of calcium. The extra calcium causes the blood vessels to contract and they become thicker, providing resistance against blood flow. The thicker vessels may become more responsive to stress hormones that the body releases. This increased sensitivity to stress can further aggravate high blood pressure, as explained in Dr. Cooper's book.

Furthermore, Dr. Cooper devotes a section to "The White-Coat Syndrome". This refers to the stress some patients experience just by going to a doctor's office often producing a high blood pressure reading. Also he mentions that caffeine may raise blood pressure by as much as 5 to 15 mm Hg. A recent study on the effects of coffee on people under stress found that adenosine is released from nerve endings in the brain to act as a brake. It travels to receptors on brain cells, where it counteracts the release of other chemicals that excite those cells. Caffeine replaces the adenosine. That certainly fits in with the multiple risk phenomena. In Johnny's case: stress, caffeine and exposure to EMFs. Although now that the damage is done only exposure to EMFs is necessary to cause onset of TIAs (small strokes) and strokes.

On a final note, Dr. Cooper states that for some people "...increasing consumption of calcium in the diet may actually lower blood pressure—though no one knows the mechanism by which this occurs." It is a matter of record that Johnny's stroke symptoms lessen when he drinks milk immediately after he has a TIA or stroke.

But I didn't know all of this then. All I knew in '78 was that these constant checks were upsetting Johnny. So he signed himself out. He relaxed. He quit the post office. Since we live in the Lasselville State Forest of the southern Adirondack Mountains in a home without electric wiring and there are no electric lines 2 to 5 miles from us in any direction, he was free of electricity. He gave up coffee, tea, and cola. We were active with problem teen boys, but when the stress from one boy gave Johnny numbness on one side, drooling, and trouble speaking, we gave up working with them, too. After about 5 years, Johnny found that an occasional coffee, or cola, and lots of tea had no effect on him.

Until the mid-1980s we had walked to town for mail, a 14 mile round trip, or to other stores, a 40 mile round trip away. Johnny carried a 100 pound sack of grain home on his shoulder once a week. We decided to get a truck. For this he needed an outside job as our subsistence farming fed us and the animals and guests well but paid poor in cash. He went back to the post office, this time closer to home. He loved his job and got along well with fellow workers and management, as shown by the awards, citations, and plaques he received as well as being voted "Best Mailhandler of the Month" by his co-workers. He made more money working on the Mark 2 cancellation machines. When the post office began a massive infusion of new machines and microwave dishes and computers, he began to experience the symptoms that I stated at the start of this article. At first his symptoms were only at close proximity to the one motor. Then he started experiencing these same symptoms around other sources of electricity. That's when it became very obvious that he was ES. When he was not around any sources of EMFs, he had no stroke-like symptoms. When he was around EMFs, even in situations where he didn't realize he was being exposed, the symptoms returned. The more often he was exposed to EMFs, the quicker the symptoms arose and the stronger and the longer lasting.

The simplest way to break this cycle of overexposure was to reduce exposure on the job, which he did by taking a more physically demanding lower paying job working on the docks loading and unloading tractor-trailer mail trucks. Again he enjoyed his work. He felt no right side pain or symptoms within the walls of the metal truck grounded by multiple tires. He might have endured until his regular 30 year retirement in 1½ years if not for a co-worker who had seniority over him in that section who wanted to work in that exact location. Johnny produced doctors' notes; one from the neurologist that said he needed accommodation as needed and another from a local physician stating Johnny needed to be away from electricity, but the doctor didn't know why. One of the supervisory personnel made a medical decision they were unqualified to make and told him to return to the Mark 2 cancellation machine or be fired!!! Well, naturally Johnny wasn't going to commit suicide on those orders. The upshot was, he was ordered to take a disability retirement; after all, his strokes were verified by C.T. and M.R.I. scans,neurologists, other doctors, and his co-workers had seen him have strokes near the machines. He's been on permanent disability retirement since November 1991 due to the amount of permanent brain damage in his head.

The M.R.I. scan was extremely helpful in proving he had the major infarcts (strokes) and TIAs (small strokes) that he said he had. However, it is true that his super hypersensitivity dated from after the M.R.I. and that other ES people have noted their extreme symptoms began after an M.R.I. We know that continual exposure to EMFs accelerates his symptoms, but we aren't sure if the M.R.I. has anything to do with this or not.

Proof is duplicatable results. The ES community is getting very pregnant with proof. Sooner or later despite the doctors' denials the baby will be born. Johnny sought out an environmental M.D. and asked for blood tests to check minerals, i.e., zinc, cooper, chromium, potassium, selenium, manganese, calcium, and magnesium. These were rbc (red blood cell) blood tests, not serum. His doctor also did a series of lipid peroxidation blood and urine tests to measure free radicals before and after exposure to EMFs (over a period of days or longer). These tests cost about $70 apiece.

I believe every ES person should get and wear a medical ID tag with ES clearly imprinted. Again here is where numbers count. When the medical ID tag companies start receiving thousands of requests for ES, they are going to inquire in the medical community about ES. When hospitals start seeing these tags in large numbers they are going to have to set up special rooms to protect the ES from exposure to EMFs. They can no longer say they never heard of ES. Misery doesn't love company, but there is protection in numbers. The medical community is already working with many things it does not understand, and not all of it is aspirin.

While total understanding should be sought, it obviously isn't necessary in order to work on a